

CORK - COUNTY GEOLOGICAL SITE REPORT

NAME OF SITE	Black Ball Head Diatreme		
Other names used for site	Black Ball Head		
IGH THEME	IGH11 Igneous Intrusions, IGH8 Lower Carboniferous		
TOWNLAND(S)	Canalough		
NEAREST TOWN/VILLAGE	Allihies		
SIX INCH MAP NUMBER	127		
ITM CO-ORDINATES	458200E 539650N		
1:50,000 O.S. SHEET NUMBER	84	GSI BEDROCK 1:100,000 SHEET NO.	24
GIS CODE	CK023		

Outline Site Description

Exposures on top of two short sea-cliff promontories.

Geological System/Age and Primary Rock Type

The Black Ball Head diatreme is an alkaline pyroclastic rock intruded into the Ardnamanagh and Reenagough Members of the Lower Carboniferous (Mississippian) Kinsale Formation. The intrusion is considered to be Upper-Carboniferous in age, emplaced just before or during the Variscan (Hercynian) orogeny around 300 million years ago.

Main Geological or Geomorphological Interest

Igneous rocks are not a major component of the bedrock geology of the Munster Basin, typically consisting of (i) thin bands of extrusive tuffs found over a wide area and (ii) dykes and other small intrusive bodies of very limited extent. On the Beara peninsula, the intrusive rocks are generally sub-divided into a northern province, cropping out along the northern coast of the peninsula, and a southern province, found along the southern coast and on Bere Island. They are intruded into Upper Devonian and Lower Carboniferous rocks and are typically alkaline in composition. Their occurrence has been linked to the development of the Munster Basin, the magma resulting from melting of the mantle under conditions of crustal extension along pre-existing zones of weakness (faults) in the Caledonide crust.

A diatreme is a volcanic pipe that cuts through crustal and basement rocks and typically reflects explosive, gas-rich volcanic activity. The Black Ball Head diatreme is a particularly interesting and well-exposed intrusion that contains fragments of the upper mantle, represented by concentrations of amphibole megacrysts, magnetite and nodules of pyroxenite. The diatreme is roughly concentric in shape, with an inner and outer zone. The inner zone is rich in mantle-derived material while the outer zone contains a predominance of lithic clasts, mostly sedimentary and igneous rocks of local origin. Original sedimentary structures can be observed in these clasts. On the northern side of the intrusion, the contact between the Lower Carboniferous country rocks and the outer zone of the diatreme is well displayed.

Site Importance – County Geological Site

This is an excellent exposure of a well-studied diatreme, part of the suite of alkaline igneous intrusive rocks emplaced into the sedimentary succession during development of the Munster Basin.

Management/promotion issues

The site is within the Beara Peninsula SPA. It is located on a wind-swept promontory formed by steep sea cliffs and should be approached with caution. As it is likely to be of interest mainly to professional geologists it does not require further promotion.



View southwestwards over the two rock spurs that comprise the bulk of the diatreme outcrop.



Contact between diatreme (right) and grey siltstone of the Reenagough Member, view towards northeast, at eastern end of northern of two rock spurs that comprise the diatreme. The conformity of the diatreme fabric to the regional cleavage is evident.



Large rounded sandstone clast in outer zone of diatreme, at eastern end of northern of two rock spurs that comprise the diatreme.



Aligned clasts in cleaved chloritic matrix outer zone of diatreme on central part of southern of two rock spurs that comprise the diatreme.



Original lamination in angular lithic clast in outer zone of diatreme on central part of southern of two rock spurs that comprise the diatreme.

